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A New Giant Toad from Southwestern Colombia.

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(Plate I).

While the junior author was in Ecuador in 1950, his friend, Mr. Rolf Blomberg of Quito, told him of reports of a giant toad supposed to exist in the vicinity of Nachao, Province of Nariño, about 90 kilometers northwest of Pasto, in southwestern Colombia. Mr. Blomberg went in search of this toad in late August, 1950, reaching Nachao by mule from Pasto. The region is near the western base of the western Cordillera, and probably has an annual rainfall of over 150 inches, to judge by records kept in northwestern Ecuador and Buenaventura.

Mr. Blomberg returned to Quito in September with a single example (the type described below) which he presented to Funkhouser for identification. Mr. Blomberg says that he reached Nachao at the height of the dry season and was told by the natives—all of whom seemed familiar with this toad—that the beasts were much more plentiful during the wet season, and that the specimen he secured was only half as large as the largest examples.

Nevertheless, the single toad obtained is over 20 centimeters in head-and-body length and weighed one kilogram when caught. It is, therefore, close to the largest record of *Bufo marinus* known to us, a 23 centimeter example in the American Museum of Natural History, New York. It would be strange if this first example obtained were near the extreme size for the species.

Determined to obtain larger specimens and upon an order from the New York Zoological Park, Mr. Blomberg returned to Nachao in May, 1951, during the rainy season. This time he obtained the three live paratypes which are now in the New York Zoological Park, and which were examined there by the senior author in July. These (two of which are pictured in *Animal Kingdom*, 54 (4): 124, 1951) are somewhat larger (largest 21.5 centimeters) than the first specimen, although according to a letter from Mr. Blomberg dated June 28, 1951, "The natives of the region . . . continue insisting that there exist considerably larger specimens."

Bufo blombergi, n. sp.

Diagnosis.—A *Bufo* of the *guttatus-glaberrimus* group, differing from *Bufo guttatus* and agreeing with *Bufo glaberri-*

mus in the rather broadly webbed toes. It differs from the east-Andean *glaberrimus* in the roughly areolated and evenly warty skin of the venter, the much smaller and less distinct tympanum, the much more concave loreal region, the broader head, the concave interorbital area, the longer lateral processes of the vertebrae, and the very large adult size.

Holotype.—Stanford 10419, a specimen 207 mm. in head and body length, from Nachao, Nariño Province, southwestern Colombia, at an altitude of about 550 meters, collected by Rolf Blomberg on September 11, 1950.

Paratypes.—Three recently received living specimens of approximately the same size, from the same area, and obtained by the same collector, were examined in the New York Zoological Park in July, 1951, and are hereby designated paratypes.

Description of holotype.—In general very similar in appearance to *Bufo guttatus* and *Bufo glaberrimus*; the upper surfaces smooth; the head very broad and shallow, without cranial crests except for a weak parietal crest; and the dorsal surface of the head and body light grayish in contrast to the dark sides of the body.

Head very broad and flat, its width just anterior to parotoids one-third of distance from snout tip to end of urostyle; without cranial crests except for a low parietal ridge. Interorbital broad, much broader than length of upper eyelid, shallowly but clearly concave, the concavity extending back to occiput. Snout somewhat rounded when viewed from above, the nostrils prominent, the line of the canthus rostralis concave, and the upper eyelids hiding the lips below them. From the side, the snout is bluntly rounded from the nostrils downward, projecting slightly beyond upper lip. Nostrils far forward, their distance from the eyes equal to the internarial space. Loreal area oblique, strongly concave, the canthus rostralis strong and prominent. Depth of subocular equals about two-thirds length of exposed part of eye. Distance from nostril to upper lip equals length of exposed part of eye. One or more large white tubercles at angles of jaw.

Tympanum very small; it is easily seen but its anterior part is indistinct structurally;

oval; vertically elongate and inclined forward above; its greatest depth equal to one-half the internarial space, to one-half distance from tympanum to corner of mouth, or to one-half length of exposed part of eye. Its distance from the eye is equal to almost twice the narrow (horizontal) diameter of the tympanum.

Parotoid glands large and prominent, roughly oval from above, extending far down on the sides to just above insertion of arm. From above, the parotoids bulge laterally, the broadest part of the body being at the posterior third of these glands; the broadest part of each gland, from above, is at the middle. From the side the glands are also roughly oval, the lowest part directly above the arm-insertion. Length of the gland equals the narrowest distance between the two. Cranial roof extending slightly out above the tympana just anterior to anterior tips of parotoids.

Arms not overly stout, their upper surfaces grossly areolated and thickly covered with low warts, the under surfaces somewhat smoother. A large, oval (almost round), median, palmar tubercle. A somewhat smaller, irregularly triangular inner palmar tubercle at base of first finger, this tubercle being connected with a large, rounded tubercle at mid-length of the first finger. Subarticular tubercles single; tips of fingers rather large and swollen, especially on first finger. Fingers without web. Second finger reaching base of swollen tip of first. Third finger longest, second and fourth about equal, reaching base of penultimate phalanx of third.

Legs only moderately stout and relatively long; the heels do not quite touch when femora and tarsi are at right angles with the body. Very little of the thigh is invested in the skin of the groin. Superior and outer surfaces of legs grossly areolate and thickly beset with low warts, like the arm. Length of thigh (vent to knee) goes into snout-tip to vent distance 2.33 times. Tibia (knee to heel) in the same 2.5 times. Length of foot in the same 1.8 times. Feet long and heavy. Toes fully webbed, the web reaching the bulbous tip of every toe except the fourth, but deeply excised between. (Web between third and fourth toes excised not quite as far down as penultimate phalanx of third.) Terminal enlargements of toes somewhat larger than those of fingers. Subarticular tubercles single. Two (and perhaps three) metatarsal tubercles, none corneous, the inner large and with a rounded, strongly projecting, free cutting edge, and the outer rounded and flat. Between these two is what appears to be another, rounded and flat, but this may be due to preservation. A strong metatarsal fold, which, however, fades out before coming close to heel.

Body flattened and dorsum broad, this flat area (caused by the great length of the lateral processes of the vertebrae) comparatively much broader than in *Bufo glaber-*

rimus. Dorsal skin, on this flat area, very smooth (except for the bony structure beneath), with neither appreciable areolae nor warts. An oblique bony ridge bounding each parotoid mesad, these two ridges much closer anteriorly than posteriorly. A median, anterior dorsal ridge, lower than the parotoid ones. Skin of sides abruptly warty and areolated below the broad dorsum. Underside coarsely areolated and beset with small smooth warts. Width of dorsum between ends of sacral processes slightly less than one-third distance from snout-tip to vent. Distance from lateral posterior corner of sacral process to vent almost as great as dorsal width at posterior margin of the parotoids.

Dorsum, down to mid-depth of parotoids and middle of sides, dirty yellowish-gray. This color also extends down over the sides of the head back to the parotoids. The lower half of the parotoids, and the lower sides, are dark, dull brown. Limbs dusky, the warts darker. Undersurface of body dirty yellowish-brown, the warts darker.

Measurements of holotype, in millimeters.—Snout to vent 207, width of head (in front of parotoids) 70, length of orbit 22, length of exposed part of eye 15, interorbital distance 27, internarial distance 16, subocular distance 12, greatest diameter of tympanum 8, length of parotoids (viewed from above) 40, depth of parotoids 25, width across vertebral processes (just behind parotoids) 65, length of femur (vent to knee) 80, length of tibia (knee to heel) 80, width of tibia 19, length of longest toe (measured from far side of metatarsal tubercle) 80, length of foot (heel to tip of longest toe) 112.

Discussion.—*Bufo blombergi* is undoubtedly a Pacific slope cognate of *Bufo glaberrimus* on the Atlantic Andean slope, and it is believed that the toads reaching 145 millimeters reported by Boulenger¹ as *Bufo glaberrimus* Günther from Cachabé, Northwest Ecuador, were *Bufo blombergi*. The Andes form an effective barrier to east-west distribution of tropical species, and as far as can be ascertained *Bufo glaberrimus* is a much smaller toad and has not been recorded west of the Andes except in the above mentioned report. The fact that the fame of these giant toads drifted out of so remote an area adds credulity to the assertion that *Bufo glaberrimus* does not approach the size of the toad herein described. If *Bufo glaberrimus* in its east-Andean range did reach such proportions, it seems that stories of it would filter out just as did the stories of the toad from Nachao.

It also seems likely that *Bufo anderssoni* Melin², later renamed *Bufo melini* Andersson³ because the former name was preoccupied, from Taracua, Rio Uaupés, Brazil, is actually *Bufo glaberrimus*. Specimens of *Bufo glaberrimus* in the Stanford Museum

¹ *Proc. Zool. Soc. London*, 1898: 123.

² *Meddelanden Göteborgs Mus. Zool. Avd.* 88 (Handl.), ser. B, 1 (4): 14, fig. 4a-b, 1941.

³ *Arkiv. f. Zool.*, Stockholm 37A (2): 62, 1945.

from eastern Ecuador show intraspecific variation which would include the characters of *Bufo melini*. It is therefore suggested that this name be placed in the synonymy of *Bufo glaberrimus*.

Finally, it can be said that the authors are not entirely satisfied with the formal status we have accorded this new form because our sample has consisted of four gigantic toads with which we have been able to compare only rather small *Bufo glaberrimus* (although some at least of the latter appear to be adult). However, we are convinced that *Bufo glaberrimus* attains no such size as *Bufo blombergi* and that the present Andean heights effectively isolate the two populations. At the very least, *Bufo blombergi* is a very well defined subspecies if only in the point of size.

NOTE ON PARATYPES.

The three paratypes of *Bufo blombergi* are thriving in the New York Zoological

Park as this paper goes to press. They will eventually be placed in the collections of the Department of Amphibians and Reptiles of the American Museum of Natural History, where they will be assigned AMNH Nos. A55319-21. The paratypes exhibit only slight variations from the holotype. The mid-dorsal color varies from light grayish-brown to dark chestnut brown. The measurements (in millimeters) of the largest individual are: snout to vent 230, width of head (in front of parotoids) 74, length of orbit 23, length of exposed part of eye 17, interorbital distance 30, internarial distance 18, subocular distance 13, greatest diameter of tympanum 8, length of parotoids (viewed from above) 43, depth of parotoids 28, width across vertebral processes (just behind parotoids) 71, length of femur (vent to knee) 91, length of tibia (knee to heel) 93, width of tibia 23, length of longest toe (measured from far side of metatarsal tubercle) 89, length of foot (heel to tip of longest toe) 125.—JAMES A. OLIVER.

EXPLANATION OF THE PLATE.

- Fig. 1. Frontal and lateral view of two paratypes of *Bufo blombergi* Myers & Funkhouser. Note areolated area of venter.
- Fig. 2. Lateral view of third paratype of *Bufo blombergi* Myers & Funkhouser.